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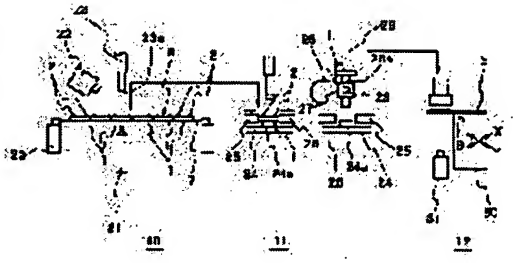
(54) IC CHIP MOUNTING DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To make it possible to mount an IC chip directly on a board after the IC chip is taken out from a wafer, while a bump of the IC chip is prevented from hitting at a table or from being pressed.

SOLUTION: In a IC chip mounting device, an IC chip 1 is pushed upward from an X-Y table 20, on which a wafer 6 in a carrier frame 7 is mounted, and picked up by a shifting means 23 to a positioning table 24. The IC chip 1 is shifted to a feeding position while the IC chip 1 is still positioned correctly by a positioning piece 25, and taken out, by an inversion means 26. The IC chip 1 is reciprocally turned over by 180° around an inversion axis 28, passed to a mounting means 29 having a suction head, and moved from the under side of the glass board 30 and mounted on a glass board 3 on a mounting table 30, in a way that a bump 2 of the IC chip 1 is fitted to an electrode of the glass board 3. Then, dislocation of the IC chip 1 is



detected by an image recog[illegible]ion means 31, and the mounting tab[illegible]0 is shifted to put the IC chip 1 in position to the glass board 3.

LEGAL STATUS

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* NOTICES *

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CLAIMS

[Claim(s)]
[Claim 1] The chip supply means equipped with the pressure-from-below member for separating and picking out IC chip from the wafer with which IC chip of a large number which prepared the bump in the front face was formed, A chip transfer means to carry out field contact, and to adsorb and take up IC chip from this chip supply means in the location which avoided the bump, The transfer table on which the field of the opposite side is laid with that bump forming face in IC chip supplied from this chip transfer means, A chip reversal means to carry out field contact, to carry out vacuum adsorption, to take out IC chip in the location which avoided that bump, and to make it reverse it from this transfer table, IC chip loading equipment characterized by considering as a configuration equipped with a chip loading means to carry out vacuum adsorption of the IC chip reversed by this chip reversal means, and to carry in a substrate.
[Claim 2] IC chip loading equipment according to claim 1 characterized by considering as the configuration which equips said transfer table with a positioning means to position IC chip on appearance criteria.
[Claim 3] IC chip transfer equipment according to claim 1 characterized by considering as the configuration which forms the image recognition means for conducting defective inspection of IC chip in said transfer table.
[Claim 4]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention separates and picks out IC chip from a wafer, and relates to IC chip loading equipment it was made to carry in the glass substrate for liquid crystal panels, and other substrates directly.
[0002]
[Description of the Prior Art] For example, although a driver IC is mounted in the glass substrate of the liquid crystal panel which constitutes a liquid crystal display, as a mounting method of this driver IC, there are a TAB (Tape Automated Bonding) method, a COG (Chip On Glass) method, etc. A COG method carries directly IC chip which constitutes a driver IC in the glass substrate in which the circuit pattern was formed. For this reason, many electrodes called a bump are formed in IC chip, and these bumps do joining to the electrode pulled out from the circuit pattern of a liquid crystal substrate. In mounting IC chip in a liquid crystal substrate by the COG method, it thrusts up, while dicing is carried out to pasteboard where a wafer is stuck, and equipping with and carrying out braking of this wafer to a carrier frame, and it thrusts up by the member, and IC chip is separated by taking up with means, such as vacuum adsorption. And IC chip taken up by doing in this way will be carried in the position of a glass substrate.
[0003] Here, after taking out from a wafer, it is common to align IC chip once at fixtures, such as a magazine, to make it contain, to supply one IC chip at a time from this fixture, and to carry in a substrate with a loading means. for this reason, a pick with proper IC chip which much chip hold sections in which IC chip is made to hold are formed in the fixture, and took up from the wafer -- and -- pre -- a chair -- it is made to hold in the chip hold section with a means Moreover, in case it carries in a substrate, a fixture is arranged to a position, IC chip is taken out from the chip hold section by the handling member of a loading means, and it carries in a substrate. Thus, in order to do easily the activity which is made to hold IC chip in a fixture, and picks it out from a fixture, it is necessary to give some play to the chip hold section of a fixture. After making IC chip hold in a fixture, in order to carry in a substrate by the COG method, a fixture must be carried in even to IC chip loading equipment at least. Therefore, there is a possibility that IC chip may run by the vibration under migration of this fixture etc. in the chip hold department, for this reason a crack, a chip, etc. may occur for IC chip in it. Moreover, the equipment for making IC chip which took up from the wafer hold in a fixture is needed, and there are also troubles, like the whole equipment configuration for carrying IC chip becomes complicated.
[0004]
[Problem(s) to be Solved by the Invention] After taking up from a wafer, it is possible to carry IC chip in a substrate as it is from the ability to carry in a substrate, without needing processing according to rank to IC chip.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the configuration explanatory view of IC chip and a glass substrate.
[Drawing 2] It is the configuration explanatory view of a wafer.
[Drawing 3] It is the outline block diagram of IC chip loading equipment in which one gestalt of operation of this invention is shown.
[Drawing 4] It is the actuation explanatory view showing the condition of taking up IC chip.
[Drawing 5] It is the explanatory view of reversal actuation of IC chip of operation.
[Drawing 6] It is the outline block diagram showing the modification of the ejection station and transfer station in IC chip loading equipment.
[Description of Notations]
1 IC Chip 2 Bump
3 Glass Substrate 4 Five Electrode
6, 6a, 6b Wafer 10 40 Ejection station
20, 20a, 20b X-Y table
21 Chip Pressure-from-Below Member 23 Transfer Means
24, 24a, 24b Positioning table
25 Positioning Piece 26 Reversal Means
29 Loading Means 30 Loading Table
31 43 Image recognition means 41a, 41b Wafer stock section
42 Transfer Station

[Translation done.]